

INSTALLATION INSTRUCTIONS

for the

Knight Model L Ceiling Mounted Operating Light

SECTION I - GENERAL INFORMATION

1. DESCRIPTION	1
2. ELECTRICAL REQUIREMENTS	2
3. WIRING DIAGRAM	2
4. UNPACKING THE CARTON	2

SECTION II - INSTALLATION

1. INSTALLING THE LEVELING PLATE AND TRIPOD	3
2. INSTALLING THE SUSPENSION TUBE	3
3. LEVELING	3
4. INSTALLING THE LIGHT HEAD AND ARM ASSEMBLY	4
5. SETTING STOP ROTATION	5

SECTION III - OPERATIONAL CHECKS

1. OPERATE/COMPOSITE SWITCH	6
2. THREE POSITION SWITCH	6
3. INTENSITY SWITCH	6

SECTION IV - ADJUSTMENTS

1. LIGHT FOCUS ADJUSTMENT	7
2. LIGHT HEAD ROTATION ADJUSTMENT	7
3. FLEX ARM TENSION ADJUSTMENT	8
4. AUTOMATIC ON/OFF ADJUSTMENT	9

SECTION V - BULB REPLACEMENT

10

SECTION VI - FINAL CHECK LIST

11

[Return To Table Of Contents](#)

INSTALLATION INSTRUCTIONS

for the

Knight Model L

Ceiling Mounted Operating Light

SECTION I - GENERAL INFORMATION

1. DESCRIPTION

The Knight Model "L" Ceiling Mounted Operating Light consists of a light head and arm assembly that is installed to the ceiling with a tripod and suspension tube (See Figure 1).

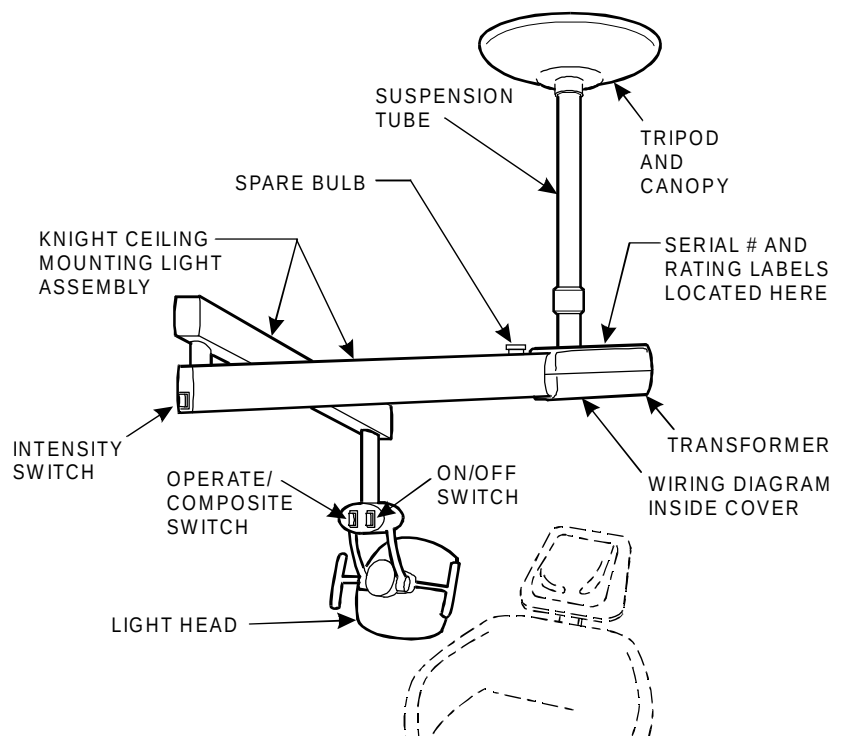


Figure 1

This equipment is rated
Class I, Type B



CONFORMS TO
UL STD. 2601-1
CERTIFIED TO
CAN/CSA - C22.2
NO. 601.1



SECTION I - GENERAL INFORMATION (CONT)

2. ELECTRICAL REQUIREMENTS:

Before connecting the line cord to the electrical source, make certain that the circuit is protected by a 15-amp circuit breaker for 120-VAC models, or a 7.5-amp breaker for 240-VAC models. Ensure that all wiring is grounded and all electrical codes are observed.



WARNING - Potential shock hazard with possible personal injury. To reduce shock hazard, observe all electrical codes.

3. WIRING DIAGRAM:

The wiring diagram for the light is located on the inside of the transformer cover (See Figure 1).

4. UNPACKING THE CARTONS

The light is shipped in two cartons containing the following items:

Large Carton

- Light arm and head assembly
- Small hardware bag
- Technical publication folder containing; Installation Instructions (this manual), Operator's Manual, and Warranty Card

Small Carton

- Tripod and canopy assembly
- Small hardware bag
- Pre-installation manual

Check for signs of damage to either the carton or to the contents and that all items listed above are present. If there is any evidence of damage due to shipping or if any of the items is missing from the carton, notify the shipper at once. Be careful not to discard any small parts or instruction sheets with the packing material.

SECTION II - INSTALLATION

1. INSTALLING THE LEVELING PLATE AND TRIPOD



CAUTION: This light requires careful consideration of location, wiring and ceiling support structure. Please refer to the Pre-installation instructions provided with the tripod and canopy.

1. After preparing a mounting location as suggested in the pre-installation instructions, secure the leveling plate to the ceiling using three 3/8" bolts (See Figure 2).
2. Mount the tripod on the leveling plate as shown in Figure 2.

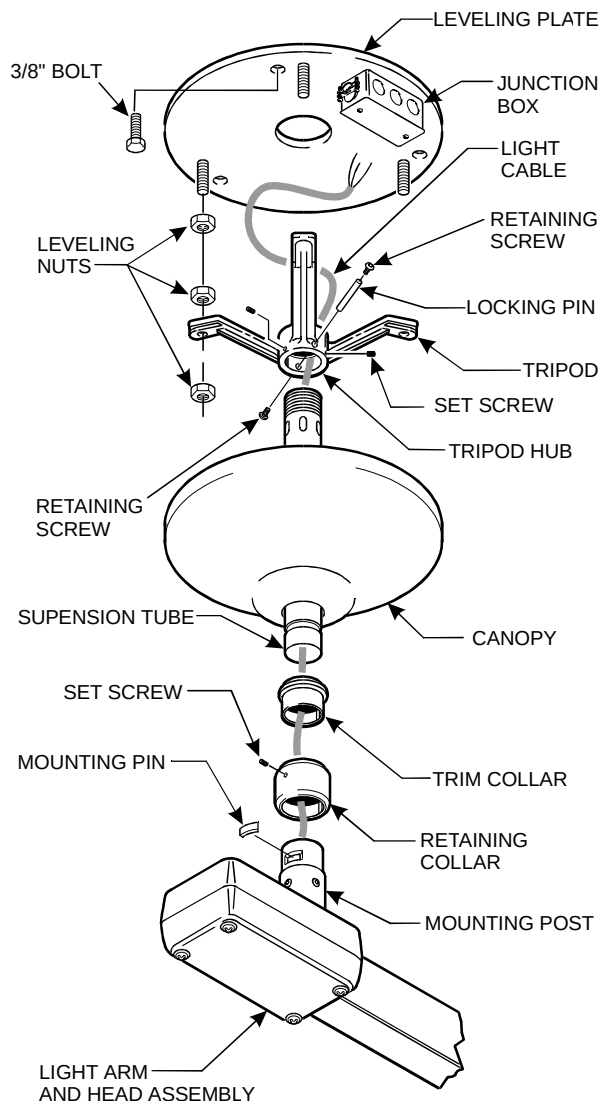


Figure 2

2. INSTALLING THE SUSPENSION TUBE

1. Thread the suspension tube into the tripod hub hand tight. Turn the tube backwards until one of the slots in the tube lines-up with the locking pin hole in the tripod. (See Figure 2).
2. Insert the locking pin through the tripod and suspension tube. Secure the pin with the two retaining screws provided.
3. Tighten the two set screws against the suspension tube.

3. LEVELING

1. Place a spirit level against the side of the suspension tube and adjust the lower leveling nuts until the tube is plumb (See Figure 3).
2. Move the spirit level around the suspension tube 90° and adjust the lower leveling nuts until the tube is plumb in this direction.
3. When the suspension tube is plumb in both directions tighten the middle nut against the tripod (See Figure 3).

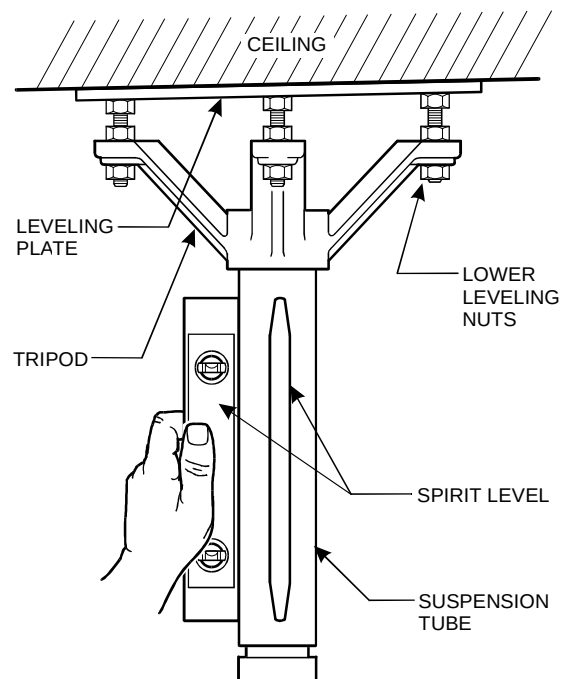


Figure 3

SECTION II - INSTALLATION (CONT)

4. INSTALLING THE LIGHT HEAD AND ARM ASSEMBLY

After the tripod is in place and the suspension tube is plumb, install the ceiling light head and arm assembly using the following procedure:

1. Slide the canopy part way up the suspension tube and use the trim collar and set screws to hold it into place. Leave enough space between the canopy and ceiling to access the junction box (See Figure 4).
2. Slide the retaining collar onto the light cable and down on the mounting post (See Figure 4).
3. Fish the light cable up through the suspension tube.
4. Lift the light head and arm assembly up as you feed the cable through and insert the mounting post into the suspension tube.
5. Slide the retaining collar up and insert the mounting pin into slot in the mounting post. This pin will rest in the groove on the suspension tube (See Figure 5).
6. Slide the retaining collar down over the mounting post end to hold in the mounting pin.



DANGER: Turn off all electrical power at the power source before making primary electrical connections.

7. Use the junction box to make the appropriate electrical connections to the power source (See Section I, Paragraph 2 - Electrical Requirements).
8. Slide the canopy and trim collar tight against the ceiling and secure with the two set screws.
9. Remove the packing materials, tape, etc., from the light head and discard them.

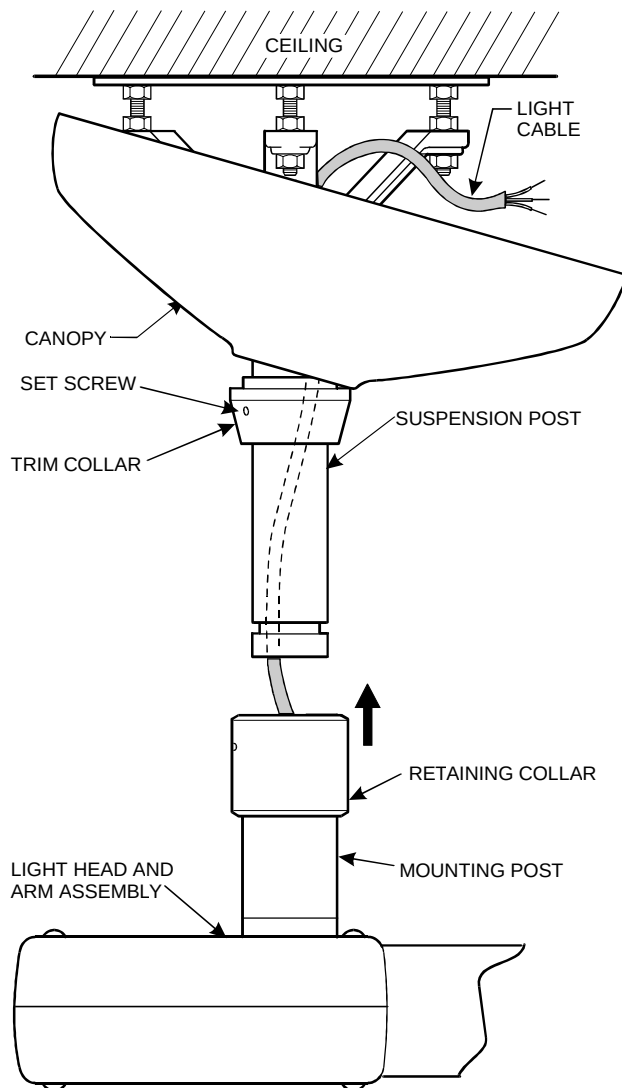


Figure 4

SECTION II - INSTALLATION (CONT)

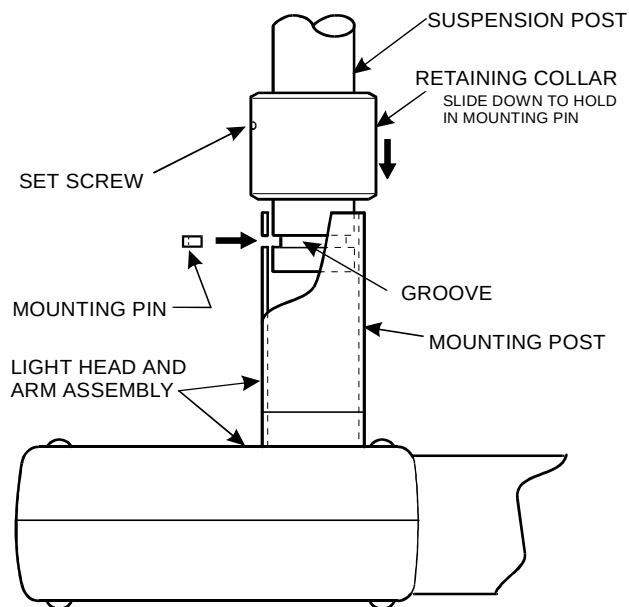


Figure 5

5. SETTING STOP ROTATION

The ceiling light rotates at two places and limits to this rotation must be set using the following procedure:

FLEX ARM STOP ROTATION

1. Screw the stop rotation screw in to place using the 3/16" allen wrench provided. (See Figure 6).



CAUTION: The stop rotation screw must be installed to prevent the flex arm being rotated completely around several times, which would twist the wires.

MOUNTING POST STOP ROTATION

2. Rotate the light arm and head assembly in one direction until the mounting post begins to rotate.
3. Continue to rotate the assembly until the desired stop position is reached.



CAUTION: When setting the mounting post stop rotation, do not rotate the light more than 360°. This may cause the light cable to become twisted.

4. Position the set screw in the retaining collar directly over the mounting pin and tighten in place. This will stop the rotation in this direction.
5. Rotate the light in the opposite direction. The light should rotate 280° before reaching the second stop position.

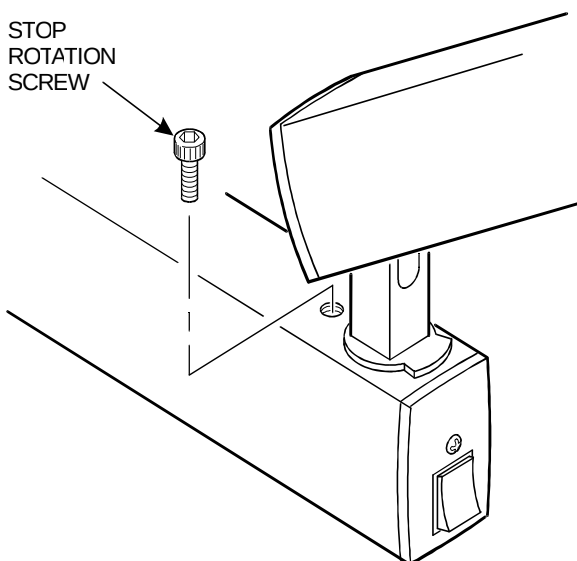


Figure 6

SECTION III - OPERATIONAL CHECKS

When the installation is complete, certain operational checks should be made, as follows:

1. OPERATE/COMPOSITE SWITCH

This switch offers the operator the following choice of functions (Refer to Figure 7):

1. **OPERATE POSITION:** This position is for normal operation and allows the light intensity to be adjusted by the intensity switch (High, Medium and Low Intensity).
2. **COMPOSITE POSITION:** This position provides the operator with reduced color temperature lighting when working with photosensitive composites.

2. THREE POSITION SWITCH

The three position switch is located on the back of the light head. This switch provides three functions, On, Off and Auto On/Off (Refer to Figure 7).

Automatic ON/OFF Position

1. Push the switch to the Auto On Position.
2. Lift the light up until it shuts off. As the light is lifted up and out of the operating position, a limit switch in the arm automatically turns the light off.
3. Lower the light into operating position. The light should come on as it is lowered.

Manual ON Position and OFF position

These two positions override the auto switch and turn the light off or on.

3. INTENSITY SWITCH

The intensity switch is located at the end of the fixed arm. This switch controls the light intensity and offers three intensity settings (High, Medium, Low). Operate the switch to make sure it is functioning properly (Refer to Figure 7).

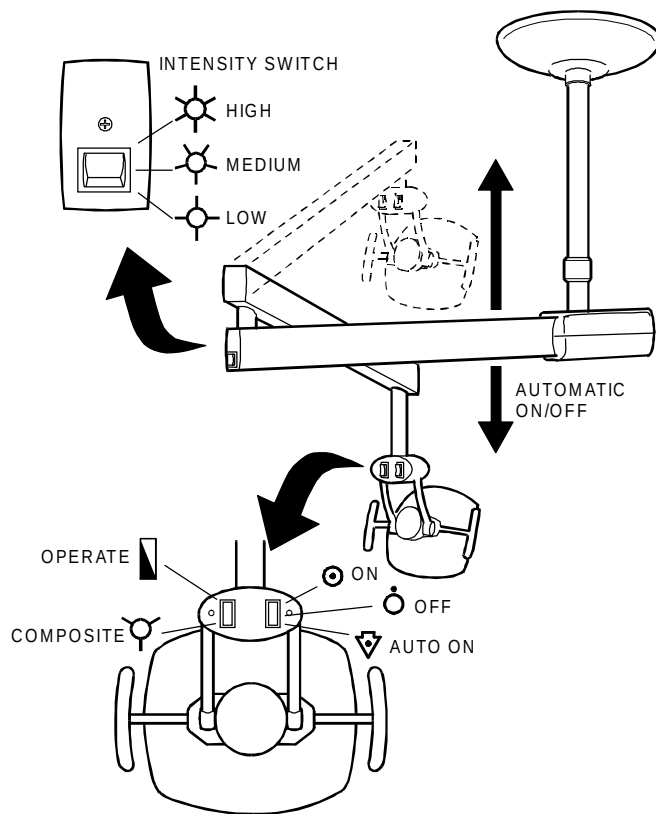


Figure 7

SECTION IV - ADJUSTMENTS

All Model "L" Lights are pre-set at the factory and should not require any adjustment. However, if adjustment is desired, read and follow the directions in this section carefully.

1. LIGHT FOCUS ADJUSTMENT

This adjustment affects the sharpness of the light pattern at a specified distance. To set the focus, use the following procedure:

1. Position the light 21 to 39 inches (53 to 99 cm) from a target (wall, chair back, etc.) and turn on the light.
2. Insert the 9/64" allen wrench provided into the hole in the back cover of the light to reach the focus adjusting screw inside (See Figure 8).
3. Loosen or tighten the screw until the desired pattern is obtained. We suggest a nominal pattern size of 3 x 8 inches (8 x 20cm), oval in shape, with feathered edges.

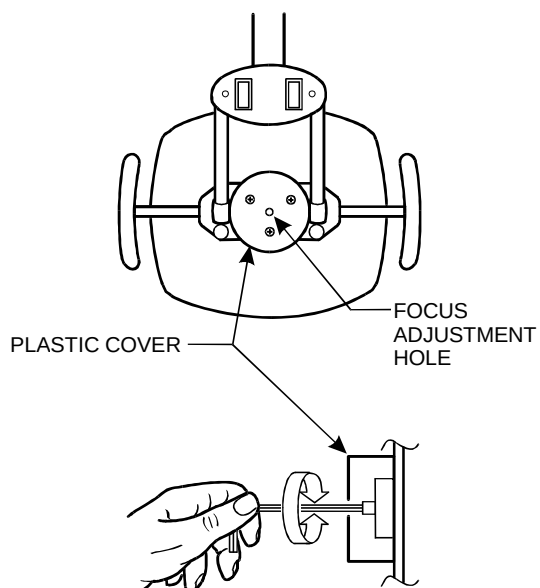
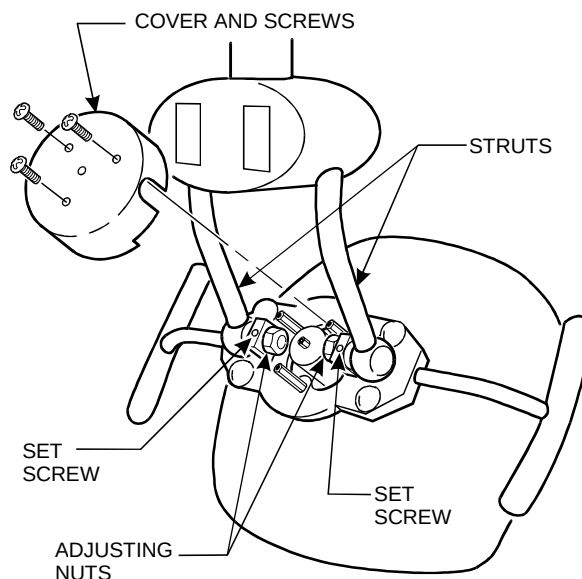


Figure 8

2. LIGHT HEAD ROTATION ADJUSTMENT

The light head rotates between two struts and is held in place with special hardware. This hardware provides the necessary tension to hold the light in any position it is moved to. If the tension ever needs to be increased, please use the following procedure:

1. Remove the back cover and three screws (See Figure 9).
2. Loosen each set screw one turn maximum, using an allen wrench.
3. Using an open end wrench, tighten the adjusting nuts on each side 1/8 turn. Check the movement of the light head. Repeat until the tension is satisfactory.
4. Retighten the set screws and replace the back cover and screws.



SOME DETAILS REMOVED FOR CLARITY

Figure 9

SECTION IV - ADJUSTMENTS (CONT)

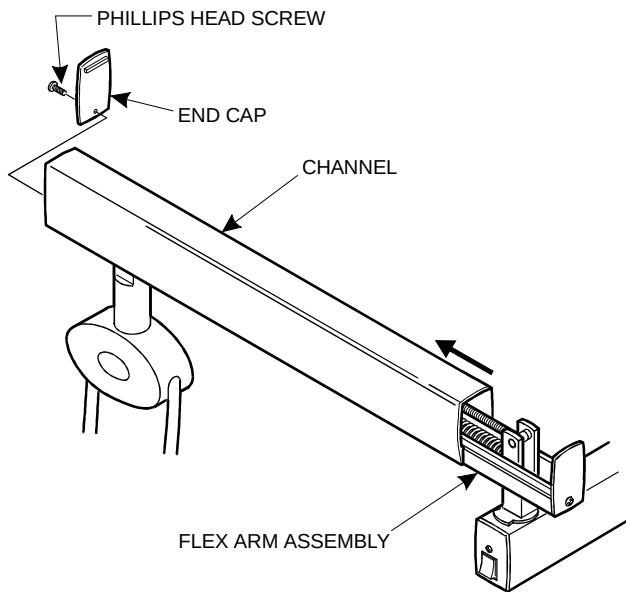


Figure 10

3. FLEX ARM TENSION ADJUSTMENT

This adjustment affects the movement of the light head and arm as follows:

- **Proper adjustment** - When the flex arm tension is adjusted properly, the light can be easily moved into the desired position and will stay in this position without any downward drift.
- **Not enough tension** - If the tension on the compression spring is too little, the light may drift out of position as it is pulled down by its own weight.
- **Too much tension** - If the tension on the compression spring is too great, the arm will feel stiff and be difficult to position. The light head and arm assembly may even drift upward because of the excessive tension.

Use the following procedure to adjust the flex arm tension:

1. To expose the interior of the flex arm, remove the end cap and screw and slide the channel off the assembly (See Figure 10).
2. Tighten or loosen the nut on the threaded rod to increase or decrease the tension on the compression spring (See Figure 11).
3. Slide the channel back on the flex arm and replace the end cap and screw.

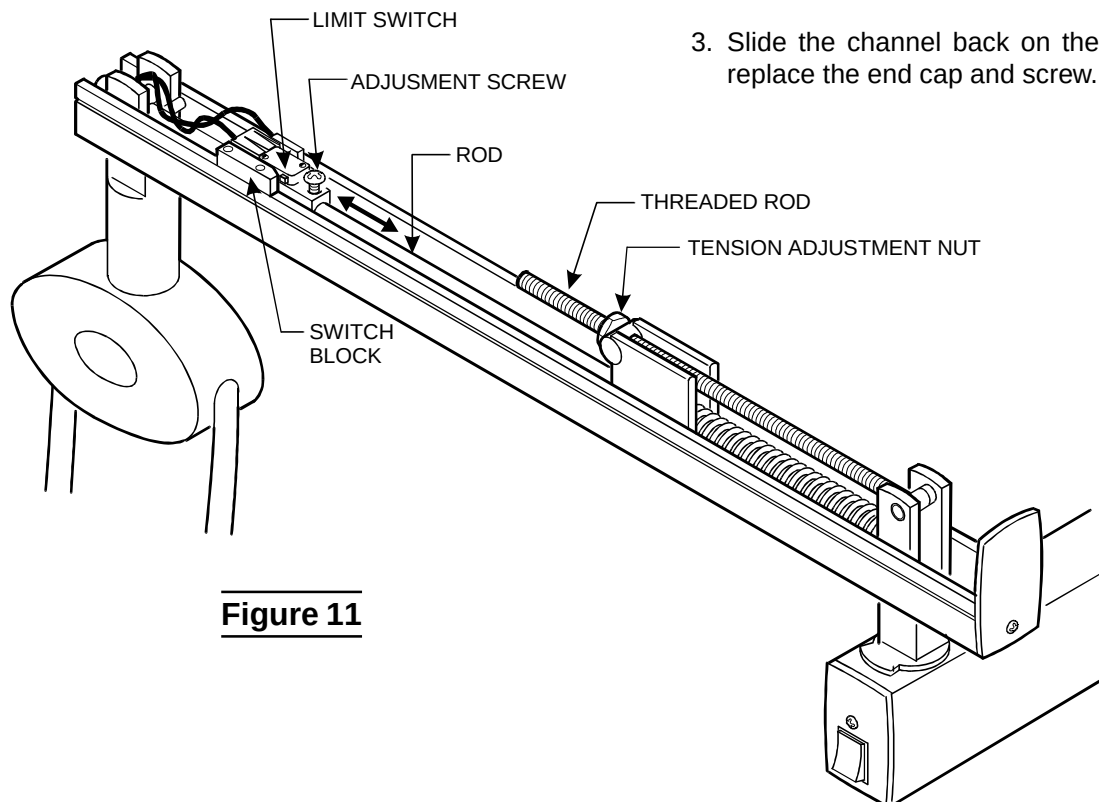


Figure 11

SECTION IV - ADJUSTMENTS (CONT)

4. AUTOMATIC ON/OFF ADJUSTMENT

Turn the switch on the back of the light head to Auto On. As the light head and arm are moved up and down an adjustable limit switch will turn the light off and on automatically. Use the following procedure to adjust this function:

1. To expose the interior of the flex arm, remove the end cap and screw and slide the channel off the assembly (See Figure 10).
2. Raise or lower the light head and arm assembly to the position where the operator would like the automatic on/off to be activated.
3. Loosen the adjustment screw and slide the limit switch along the rod until it makes contact with the switch block and the light turns OFF (See Figure 11).
4. Tighten the adjustment screw. Slide the channel back on the flex arm and replace the end cap and screw.

SECTION V - BULB REPLACEMENT

All Model "L" light heads are pre-assembled at the factory with the bulb and shields in place. If it becomes necessary to replace the bulb during installation, please use the following procedure:



WARNING: The light bulb operates at extreme high temperatures. Do not attempt to remove the bulb until it has cooled for at least 2 minutes after the light has been turned off.

1. Remove the lamp shield and reflector cover by pushing in and turning the lamp shield **counter clockwise** (See Figure 12).
2. Remove the bulb by pulling straight out (See Figure 13).
3. To install the new bulb, align the contact pins with the socket holes and press the bulb in firmly .



CAUTION: Install the bulb without removing its protective plastic cover (See Figure 14). Finger marks left on the bulb glass during installation will reduce the bulb life. If the bulb is accidentally handled, wipe it clean immediately with denatured alcohol.



Figure 14

4. Place the reflector cover in position over the reflector (See Figure 12). Insert the lamp shield through the hole in the reflector cover and onto the socket holder (make sure to align the locking tabs). Push in and turn the lamp shield approximately 1/8-turn **clockwise** to lock in place.



WARNING: Do not operate the light without the plastic reflector cover in place. Operating the light without the cover could result in personal injury.

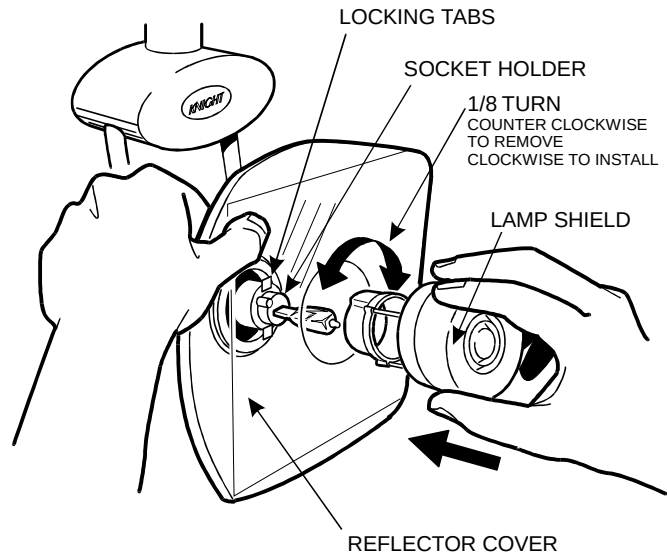


Figure 12

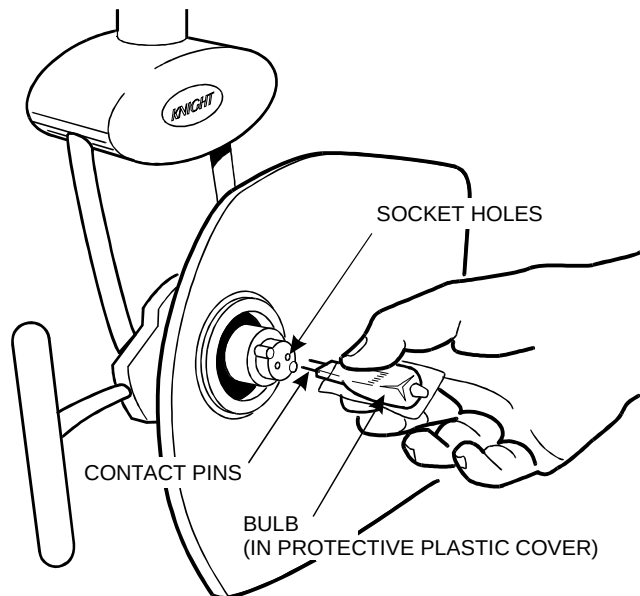


Figure 13

SECTION VI - FINAL CHECK LIST

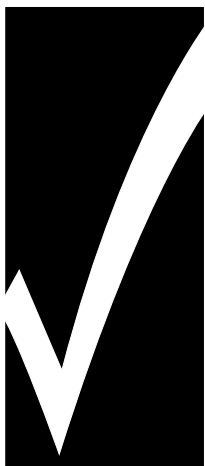
When all the assembly and installation procedures are completed, the light should be checked out in accordance with the following check list to ensure that assembly is complete and that all controls function properly.

- ☐ Check all switches for proper operation.
- ☐ Check the complete assembly to make sure it is level and plumb.
- ☐ Check the complete assembly to make sure it is stable and properly supported by the ceiling structure.
- ☐ Check the light arm and light head assembly for smooth and unobstructed movement.
- ☐ Make sure the stop rotation limits are properly set.
- ☐ Be sure that all optional equipment has been installed.
- ☐ Check that all shipping tape and other packaging materials have been removed and disposed of.
- ☐ Make sure that the light has been cleaned and that all dirt and finger prints have been removed.
- ☐ Be sure the person who will operate the light receives the operators manual and any other appropriate information or instructions.

NOTES

[Return To Table Of Contents](#)

DECLARATION OF CONFORMITY



MIDMARK CORPORATION

Midmark Corporation declares that Model L Light conforms to the applicable requirements of the Medical Device Directive 93/42/EEC, Annex VII.

Serial Numbers: LL3055 to present.

Quality Assurance Manager

A handwritten signature in black ink, appearing to read "Gene Harshbager". The signature is fluid and cursive, written over the printed name.

Gene Harshbager
Midmark Corporation
60 Vista Drive PO Box 286
Versailles, OH 45380 U.S.A.
October 18, 1999

TPW1769 Rev. B (10/99)

KA940700

Knight[®]
by Midmark

Midmark Corporation • P O Box 286 • 60 Vista Drive
Versailles • Ohio • 45380-0286 • www.midmark.com
Phone: 937-526-3662 Fax: 937-526-5542